

**IAN BENNIE AND ASSOCIATES**

**TEST REPORT NO. 2017-061-S1**

**TERRACADE XP – 600 MM  
WIND LOAD TESTS to AS4040**

**for**

**Brickworks Building Products**

**August 2017**



Accredited Laboratory No. 2371  
Accredited for compliance with ISO/IEC 17025.



**TEST REPORT NUMBER 2017-061-S1**

**Test Client**      Brickworks Building Products

**Sample Identification**      A sample of Terracade XP – 600 mm was supplied for testing. The sample measured 1800 mm in width by 1500 mm in height and consisted of 3 tiles in width and 5 tiles in height. The tiles were mounted on horizontal suspension rails that were fixed to a timber sub-frame. Figure 1 is a photograph of the sample. All components of the sample were as detailed in the drawings provided by the Client that are given in Appendix A.

**Test Method**      Strength limit state testing was conducted in accordance with AS4040 Methods of testing sheet roof and wall cladding, Method 3: Resistance to wind pressures for cyclone regions and Method 2: Resistance to wind pressures for non-cyclone regions. As the final static pressure stage of Method 3 is the same duration as required in Method 2: Resistance to wind pressures for non-cyclone regions, the result of the final stage is also evaluated for non-cyclone regions.

For the purpose of the tests, a thin plastic film was installed loosely over the front of the stud wall. This film provided the air seal for uniformly distributed air pressure loads applied from behind the sample.

**Procedure:**      AS4040.3 nominates a sequence of fatigue cycling based on the Ultimate Strength Limit State Pressure ( $P_t$ ) as follows:

- 8000 cycles ..... 0 to 0.40  $P_t$
- 2000 cycles ..... 0 to 0.50  $P_t$
- 200 cycles ..... 0 to 0.65  $P_t$

This fatigue test is then followed by a series of increasing static test pressure for a period of 1 minute each until failure occurred.

**Nominated Strength Limit State Pressure:** -6.0 kPa

**Figure 1: Photograph of the test sample**



**Test Location:** IBA Test Centre  
Dandenong, Melbourne.

**Test Date(s):** 24<sup>th</sup> July 2017.

## **TEST RESULTS**

### **Observations:**

8000 cycles at	-2.40 kPa	No sign of failure was observed.
2000 cycles at	-3.00 kPa.	No sign of failure was observed.
200 cycles at	-3.90 kPa	No sign of failure was observed
Static load(s)	-6.00 kPa.	Pressures were applied incrementally up to -6.00 kPa and no sign of failure was observed.

When the pressure was increased to -6.2 kPa, the centre top tile released from the rails (see Figure 2). It appeared this tile lifted upwards and released along the bottom edge first as the engagement legs of the tile were not broken. The tile to the right of the released tile had also begun to lift up (see Figure 3)

**Figure 2: Photograph of the sample after the test.**



**Figure 3: Photograph of the tile to the right of the tile that released.**



**Requirement:**

AS1562.1 Design and installation of sheet roof and wall cladding, specifies that the cladding system remain substantially in position, notwithstanding any permanent distortion, fracture or damage that might occur in the sheeting or fastenings.

**Conclusion:**

The test sample passed the test requirements of Australian Standard AS4040 Methods of testing sheet roof and wall cladding at the following strength limit state pressures:

**Cyclone Regions: -4.61\* kPa**

**Non-cyclone Regions: -6.00 kPa**

\* The Cyclone Regions strength limit state pressure is reduced by a variability factor of 1.3 as only one sample was tested. Refer AS4040.3 for details.

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Derek Dubout, 2 August 2017  
Authorised Signatory

